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(54) Title: SYSTEM AND METHOD TO SET UP A COMMUNICATION BASED ON IDENTIFICATION CARDS

(57) Abstract

Communications between stations (1) of a network are set up under control of tokens (11) inserted in base units (7–9) at the stations (1), finger–depression of any token (11) causing data identifying the token (11) and its unit (7–9) to be transmitted for read out from a central database unit (27) of data that establishes communication with the station (1) where a paired or other related token (11) is located. The database is updated according to movements from station (1) to station (1) of the tokens (11), enabling related tokens (11) distributed between different users to be used for immediate communication without keying in of location–data. The establishment of communication–connection is signified at the called station (1) by energising an LED (29 Fig 2; 29' Fig 3) within the token (11) or its base unit (9). Alternative tokens (31 Fig 4; 41 Fig 5) with (or without) appropriate interface base–units and operated differently are described, together with communication via the Internet (Fig 6).

SYSTEM AND METHOD TO SET UP A COMMUNICATION BASED ON IDENTIFICATION CARDS

5   This invention relates to communications methods and
     systems.

     According to one aspect of the present invention there is
     provided a communications method wherein communication
10   between any of a multiplicity of stations is initiated by
     activating the transmission from one of the stations of
     identification data derived from a token, the
     identification data is related through a data-base with
     data identifying another of said stations, and in
15   accordance with this latter data, communication is
     established with the identified station.

     Communication with the identified station may be set up
     automatically in response to reading out of the station-
20   identifying data from the data-base. However, this data
     may instead be read out for supply to the calling station
     to enable the connection for communication to be set up
     from that station. Also, although the communication set
     up automatically or otherwise may be such as to establish
25   a connection for telephone, data or other communication
     between the two stations, it may instead be simply
     reflected in an audio and/or visual signal manifested at
     the identified, called station.

30   The method may be carried out using pairs or larger
     groupings of tokens with the tokens of each pair or other
     grouping related to different stations from one another.
     In this case the data-base may store in relation to each
     pair or other grouping, data identifying the stations to
35   which those tokens are respectively related, such that
     activation of transmission of identification data derived
     from any such token is effective to identify through the

data-base, the station to which the other or each other
token of the grouping is related.

As an alternative or in addition, a plurality of tokens
may be all associated through the data-base with the same
station. In this case, activation of transmission of
identification data derived from any such token when
located at another of the stations may be effective to
establish communication between this other station and
the station with which the token is associated.
Furthermore, tokens may be used to request a service, and
in this case activation of transmission to the data-base
of identification data derived from any such token may be
arranged to result in transmission of a request for
service to a station that is associated through the data-
base with such service. Transmission of the request for
service may be accompanied by identification of the
station from which the request originated.

According to another aspect of the present invention
there is provided a communications system for
establishing communication between any of a multiplicity
of stations, including a plurality of tokens for location
at the stations and each operable at any of the stations
for activating the transmission from that station of
identification data derived from that token, means
providing a data-base that relates the identification
data with data identifying another of said stations, and
further means operative in accordance with this latter
data.

The stations in the communications method and system of
the present invention may be stations of a telephone
network, but other networks such as the Internet may be
involved in addition or alternatively.

Communications methods and systems in accordance with the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

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Figure 1 is a schematic representation showing a communications system according to the invention;

Figure 2 shows details of tokens and a base unit
10   incorporating receptors for the tokens, utilised in the system of Figure 1;

Figure 3 shows details of modification of the tokens and base unit of Figure 2;

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Figures 4 and 5 illustrate alternative forms of token and base unit to those of Figures 2 and 3, for use in the system of Figure 1; and

20   Figure 6 is a schematic representation of a further communications system according to the invention.

The communications method and system to be described with reference to Figure 1 utilises a public telephone network
25   in which a multiplicity of telephone subscriber stations are connected by individual lines or radio channels to telephone exchanges of the network. The exchanges operate conventionally to route calls within the network and to other networks, in establishing communication
30   between calling and called stations. For simplicity, the communications system is illustrated and will be described with reference to Figure 1 in the context of its operation as between just three subscriber stations connected by individual lines to the same exchange.

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Referring to Figure 1, the telephone subscriber stations 1 are connected by individual lines 2 to the telephone

exchange 3; the three stations 1 shown are distinguished
from one another as 1A, 1B and 1C. Each station 1
includes, as shown only for the two stations 1A and 1C, a
normal telephone 4 that is connected to the respective
exchange line 2 for use in setting up and receiving
telephone calls in the conventional manner.

As illustrated for the stations 1A and 1C only, the
telephone 4 is in each case connected to the respective
exchange line 2 via a control unit 5. The unit 5 serves
to connect one or more token-receptors 6 to the line 2 in
parallel with one another and the telephone 4. In the
case of the illustrated station 1A, three receptors 6
mounted on a common base unit 7 are connected to the line
2 via the unit 5, whereas in the case of the illustrated
station 1C, there are nine receptors 6 three on a common
base unit 8, two on a common base unit 9 and four linked
together by a strap 10. By way of example in Figure 1,
tokens 11 are shown inserted in one receptor 6 of the
station 1A and in two receptors 6 of the station 1C.

Constructional details of the receptors 6 and tokens 11
are illustrated in Figure 2 and will now be described in
the context of, for example, the base unit 9. Two tokens
11 are shown in Figure 2, one as inserted in one of the
two receptors 6 of the base unit 9, and the other as
aligned ready for insertion in the other receptor 6.

Referring to Figure 2, each receptor 6 has a hollow shell
20 (of plastics, ceramic or other material) that is
upstanding from the base unit 9. The shell 20
incorporates a socket 21 for receiving the leading end or
nose 22 of an inserted token 11, and a microswitch 23 is
located in the socket 21 so as to be closed by the
inserted token 11. An antenna in the form of an
electrical coil 24 that is located just above a second
microswitch 25 within the shell 20, rests on the switch

5

25 without actuating it. The nose 22 of the inserted
token 11 abuts the coil 24 so that depression of the
token 11 downwardly by hand, within the receptor 6 acts
via the coil 24 against the light, resilient opposition
5   of the switch 25, to actuate the switch 25. (The nose 22
of the inserted token 11 may as an alternative extend
through the coil 24 so as to be surrounded by the coil 24
and actuate the switch 25 directly).

10   Actuation of the switch 25 of any receptor 6 in this way,
is signalled to the connected control unit 5 (Figure 1)
to supply the output of an oscillator (not shown) to the
coil 24 transitorily. An oscillation, or pulse of
oscillations, in the coil 24 triggers a transponder
15   module 26 of the token 11 to induce into the coil 24 a
radio-frequency pulse sequence that is uniquely
representative of the token's identity.

Referring also to Figure 1, the control unit 5 on
20   receiving the token-identifying sequence from the coil 24
of the relevant receptor 6, establishes a connection with
the exchange 3 via the exchange line 2 individual to its
station 1. Having established the connection, the unit 5
signals to the exchange 3 via that line 2, identifiers of
25   the token 11 and the receptor 6 containing it. These
identifiers are combined within the exchange 3 with
identification of the line 2, and therefore, subscriber
station 1, from which the token- and receptor-identifiers
were received, and are signalled to a data-base unit 27;
30   the unit 27 is shown in Figure 1 as located within the
exchange 3, but it is not necessary for it to be located
there provided there is effective communication with it
within the system.

35   The data-base unit 27 stores information related to the
identifiers of each token 11 used in the system. More
particularly, it stores in relation to each token-

6

identifier, identification of the station 1 (by line-
identifier) where the token 11 is located, together with
identification of the receptor 6 containing it at that
station 1. Each time the unit 27 receives a signal

5   identifying any token 11, it checks the accompanying
station- and receptor-identifications against what is
stored in relation to that token 11 to ensure that there
has been no change in either its station- or receptor-
location; if there has been a change, then the stored

10   identifying data can be updated. Thus, the data-base
unit 27 keeps track of each token 11 to update the data-
base if necessary, each time the token 11 is used to
establish communication. Updating may, however, be
carried out whenever the location of the token 11 is

15   changed rather than waiting until communication is to be
established by it; the token in this case is operated
according to a protocol that provides for up-dating of
the data-base without the setting up of communication.
This enables any such token 11 (or merely its new

20   station) to be called without the possibility of having
to wait for a call to be made from it to update the data-
base, or the need to establish communication with, say,
the exchange 3 or unit 27 beforehand. It is simply
necessary to address the data-base of the unit 27 with

25   the relevant token-identifier, so as to read out the up-
to-date station-identification and, if necessary,
receptor-identification.

The exchange 3 responds to station- and receptor-
30   identifications read out from the data-base of the unit
27 to transmit signals to the control unit 5 of the
identified station 1 via its line 2. The signals include
identification of the relevant receptor 6 at that station
1, and the unit 5 responds by energising the coil 24 of

35   the identified receptor 6 with high amplitude
oscillations. The oscillations supplied to the coil 24
induce current into a coil 28 of the token 11 causing a

7

light-emitting diode (LED) 29 connected within the token
11 to the coil 28, to emit light so as to indicate the
calling condition for that token 11. Communication can
then be established to and from the called station 1

5   simply by use of the telephone 4 using the line-
connection established at the exchange 3.

The communications system described, may be used in any
of three main modes of operation; the three modes may be

10   used concurrently within the same system, and the same
receptors 6 may be used selectively for any of the three
modes. In a first mode, a pair of 'identical' tokens 11
is used, the two tokens of the pair being used
respectively by two persons to facilitate communication

15   between them; in particular a person may purchase the
pair.of tokens 11 and give one to a friend or relative,
keeping the other for himself/herself. Each person
inserts his/her respective token 11 in a receptor 6 at
his/her own station 1, or at some other station 1 to, or

20   from, which he/she is to have communication. Insertion
of the token 11 into the receptor 6 causes the station-
and receptor-identifications of that token 11 to be
entered into the data-base of the unit 27.

25   The tokens 11 have identifiers that are related to one
another such that the unit 27 recognises their pairing
with one another. In particular the tokens 11 may have
unique identifiers that differ from one another only
slightly, say, in one digit, or may even have the same

30   identifiers as one another; in this latter case, the unit
27 must discriminate intelligently between the two when
up-dating of stored data is required upon change of
token-location (where there is no difference between the
tokens, it may be necessary for discrimination purposes

35   as required, say, for automatic billing, to allow the
location of only one token to be changed at a time).
Nonetheless, the unit 27 acts when either of the pair of

8

tokens 11 is depressed, to read out the station- and
receptor-identifications applicable to the other token
11. The consequent emission of light by the LED 29 of
this other token 11, indicates to the person to whom it
5   belongs, that the person having the paired token 11, has
depressed that token 11.

The emission of light by the LED 29 may therefore be
understood as a communication, whether complete in itself
10 (for example as a signal of friendship or other emotion),
or to indicate that the other person is wishing to
establish communication by telephone or other means. In
the latter regard, the exchange 3 acts to interconnect
the lines 2 of the stations 1 of the paired tokens 11 so
15 that telephonic communication can take place using the
telephones 4 at those stations 1 without the necessity
for the usual dialling-in of numbers in setting up the
connection. The call is set up between the two persons
automatically, simply when one of the paired tokens 11 is
20 depressed, and this applies irrespective of any moves
they may make from one station 1 to another within the
system. Moreover, each person may have paired tokens 11
with any number of other persons.

25 The second mode of operation is where each person
involved has a supply of identical tokens 11 that are
each recognizable by the unit 27 (through the token-
identifier used) as associated with a particular
telephone station 1 (the unit 27 keeps track through an
30 updated registry of the tokens 11 as described above, so
as to ensure that the current station-location is always
known irrespective of change of station 1). The tokens
11 are exchanged one for one, with the tokens 11 of other
persons, much in the same way as business cards are
35 exchanged. When one of the persons wishes to call
another, he/she simply inserts the token 11 received from
that other person in a receptor 6 at any station 1 (if it

has not already been inserted there) and depresses it to
transmit the token- and receptor-identifications to the
exchange 3. The unit 27 acts to identify the station 1
associated with the identified token 11 and cause the
5   exchange 3 to call it and establish the appropriate line-
connection between that station 1 and the station 1 from
which the identifications were received.

Where the calling person is using the tokens 11 he/she
10   has received, from only one individual station 1 (or a
station 1 identified specifically for this purpose to the
unit 27), the data-base unit 27 may include provision for
relating the station 1 from which the call originates
with the token-identifier peculiar to the person using
15   that station 1. In these circumstances, the exchange 3
may activate the unit 5 of the called station 1 such that
the LED 29 of the token 11 having that identifier, if
engaged with a receptor 6 there, emits light to indicate
who has initiated the call.
20

In the second mode of operation of the system of Figure 1
described above, each person involved has his/her own
individual tokens which are exchanged one for one, with
the tokens of other persons, and the data-base retains
25   for each token, information (updated as necessary)
relating to its station-location. As an extension to
this mode of operation each token carries a code linked
to the relevant individual's station-location as before,
but the tokens used have a read-write capability. If
30   after tokens have been exchanged between two individuals,
say parties A and B, party A depresses or otherwise
actuates the token he/she received from party B ('B-
associated token'), the system responds to this to
determine whether there is a token associated with party
35   A ('A-associated token') at the station identified with
the actuated B-associated token.

A call may be set up to this latter station whether or
not the A-associated token is entered there, but if the
A-associated token is entered there, then the system is
also active to write into that token the identification
5   code of the station where the B-associated token is
located. The identification code of the station where
the B-associated token is located is also written into
the B-associated token so that both tokens now store a
unique combination of codes. With this unique
10   combination of codes stored in both tokens they may now
be used in the manner of the 'identical' tokens utilised
for the first mode of operation described above with
reference to Figure 1. That is to say, the tokens may be
used for communication between the parties A and B
15   between any of the stations, not just between the
stations associated with them in their first use.

It is not essential that the tokens exchanged between
parties A and B are first used in the stations associated
20   with those individuals; however, as a safeguard, data
written on the token may need to be confirmed when the
token is first used. For example, it may be arranged
that the B-associated token can be first used by party A
at a station other than the station associated with party
25   A, provided he/she when using the B-associated token at
some other station also keys in or otherwise enters from
that station, identification of his/her associated
station. This enables the system to establish a correct
relationship between the tokens and encode them
30   appropriately.

In the third mode of operation, the token-identifier is
related to the station 1 from which a range of services
can be obtained, and which of those services is selected.
35   The token 11 is used in this case whenever that selected
service is to be requested, depression of the token
within a receptor 6 causing the token-identifier to be

transmitted to the unit 27 such that a request for the
selected service is put through to the relevant station 1
with identification of the station 1 from which the
request originated.

5   If, with this third mode, the token 11 appropriate for
requesting a particular service is retained within a
receptor 6 at the service-requesting station 1, then
indication of the availability of new information about
10   the service, can be given through that token 11. In
appropriate circumstances, distribution of the tokens 11
for service, can be restricted, so that only selected
clients can benefit from the service offered.

15   There are many variations that may be made to the system.
In particular, it is possible for the function of the LED
29 in indicating the token 11 being called, to be
incorporated in the receptor 6 or its base unit (the base
unit 7, 8 or 9) such that it is the receptor or base unit
20   into which the called token 11 is plugged, rather than
the token 11 itself, that emits light. Modification of
the receptors 6 of the base unit 9 and of the tokens used
with them, on these lines, is illustrated in Figure 3.
Figure 3 corresponds to, and is essentially the same as,
25   Figure 2 with the exception that the modified tokens 11'
in this case omit the LEDs 29 and coils 28, and LEDs 29'
are instead incorporated in the modified receptors 6'.
The LED 29' of each receptor 6' is connected so that it
is energised to emit light, directly rather than via the
30   antenna coil 24', from the unit 5 of its station 1.

It is possible to omit receptor-identification data from
communication to, and storage in, the data-base. In this
respect, the unit 5 (or the one or more base units such
35   as the base units 7, 8 and 9, connected to the unit 5) of
each station 1 may store data that relates the
identifiers of the tokens 11 at that station 1 to the

12

receptors 6 containing them; the exchange 3 in these
circumstances may transmit to that station 1 the
identifier of the called token 11 so that the appropriate
receptor 6 is selected at the station 1. Storage of such
5   data in the units 5 is not even necessary if the tokens
11 are polled in turn until response is received from
token sought. Additionally, storage is not required if
the tokens 11 (for example, by means of their transponder
modules 26) are selectively-addressable, then it is only
10   the particular token 11 identified by the token-
identification received by the unit 5, that responds to
confirm that the token 11 required is present (this
response can be used at the station 1 for signalling
and/or control purposes).
15

Each station 1 may have any number of receptors 6, and
although in the example described above with reference to
Figure 2, signal transmission between receptor 6 and
inserted token 11 is carried out by radio-frequency
20   pulses, it may be carried out via electrical contacts,
infra-red transmission or by use of magnetic induction or
any combination of these; similarly, in that example,
energisation of the LED 29 within the token 11 may be
made via electrical contacts instead of, or in
25   combination with, use of magnetic induction.

The tokens 11 described above are activated to transmit
data, by depressing them within their receptors 6.
Activation may, however, be by other means, and for
30   example may be by moving the token in some other way, by
voice or other sound stimulus, or by laser or other light
beam. An alternative form of token and mode of operation
in relation to its base unit, will now be described with
reference to Figure 4.
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Referring to Figure 4, the token 31 in this case has an
irregular form and incorporates a transponder module 32.

13

Actuation of the token 31 to initiate a call involves
bringing the token 31 up to a button-push 33 of a base
unit 34. The button-push 33 is depressed by hand, or by
pressing the token 31 down onto it to displace an

5   electrical coil 35 downwardly onto a micro-switch 36
within the base unit 34. This leads to energisation of
the coil 35 from an oscillator (not shown) to trigger the
transponder module 32 and transmit its token-identifying
pulse sequence back into the coil 35.

10

The form of base unit 34 illustrated in Figure 4 may be
common to a plurality of tokens kept together or
otherwise near the unit 34. The unit 34 may incorporate
the facility for emitting an audio or visual signal

15   (which may include identification of the token being
called), so that incoming calls may be dealt with.

Radio-frequency communication may be used for interaction
with selectively-addressable tokens as illustrated in

20   Figure 5. In the arrangement of Figure 5, tokens 41 for
use in conjunction with the relevant telephone line 42 of
a telephone 43, are placed within a dish-shaped
receptacle 44 that forms part of a base unit 45. The
unit 45, which is connected to the line 42 in parallel

25   with the telephone 43, incorporates an LCD visual display
46 and a radio antenna (not shown) hidden under the rim
47 of the receptacle 44.

A unit 48 corresponding to the unit 34 is connected to

30   the unit 45 for use in reading the identifier of each
token 41 before it is put into the receptacle 44. This
enables the location of the token 41 to be registered in
the data-base so that calls to that token 41 are
appropriately directed to the unit 45. Each such call

35   received by the unit 45 results in energisation of a lamp
49 of the unit 45 and of its antenna. The antenna is
energised with a radio-frequency signal related to the

14

identifier of the called token 41, and that specific
token 41 (when within the receptacle 44) is activated by
the transmitted signal to provide the required radio-
frequency response; an LED within the activated token 41
5   may be energised if the transmitted power is strong
enough. The radio-frequency response from the token 41
is received via the antenna for processing within the
unit 45 and possible generation of a reply signal for
transmission on the line 42.
10

The display 46 may provide indication of the identity
(e.g. by name and/or telephone or other number) of the
caller, and may also indicate the identity of the called
token 41. Furthermore, the display 46 may be utilised in
15   conjunction with the unit 48 for confirmatory purposes
when registering the identifiers of tokens 41 placed in
the receptacle 44. The unit 48 may also be used, and the
display 46 with it, when tokens 41 are removed from the
receptacle 44, to signal this fact to the data-base via
20   the line 42; the different circumstances of use may be
signalled by bringing the token 41 to the unit 48 and
operating its button-push only once, say, when logging
the token 41 on, and twice in rapid succession when
logging it off from relationship with the unit 45.
25

The necessity of providing each station of a system with
some form of base unit as an interface between the tokens
and the system, can be avoided by including within the
token itself means suitable for direct transmission of
30   data into the system. For example, where the system is
based on a telephone network, a DTMF-tone transmitter may
be included within the token. In this case the tone
transmitter can be used to emit tone signals encoded in
accordance with the token identifier and other data for
35   transmission down the telephone line via the microphone
of the telephone handset. The token may have provision
for operation in either of two modes selected by

actuation of a switch or button, one mode for use solely
in updating the data-base as to the location of the token
(and thereby enabling calls to be made to the station to
which the token was last introduced), and the other for
5   use in establishing a call from the token.

Instead of including tone transmitters in the tokens,
each token-user may be provided with a portable unit that
includes a tone-transmission capability, this being
10   activated in response to insertion of a token into it (or
depression of any token carried by it) to read data from
the token and emit that data in tone-coded form. The
portable unit, which could be used to store identifiers
and data relating to the tokens to be used with it, may
15   include provision for operating it selectively in a mode
for up-dating the data-base as to the location of the
unit and those tokens, or a mode for setting up
communication. A comparable function can be carried out
where the interface of a base-unit is still used,
20   utilising a 'master' token that stores identifiers and
data relating to other tokens.

Although the above example of a communications system in
accordance with the invention has been described in
25   relation to a public telephone network (PSTN), the
network need not be of this nature but may be, for
example, a cellular communications network, and need not
be public but may be, for example, a local, small or
private exchange system. Moreover, the invention is
30   applicable outside the context of telephone
communication. It may be used alternatively, or in
addition, in connection with a computer network, and/or
in conjunction with video and/or other form of
communication; the nature of the station in this regard
35   and whether it has single or multiple communication
functions is not significant to the fundamental
operation. As one example, the system may be used in

exhibitions and fairs, large offices or other buildings
and areas for the principal purpose of readily locating
individuals as they move about within those buildings or
other areas. In this case, each individual may be

5   assigned a pair of tokens one of which is used by the
individual to signify his/her location as he/she moves
about by entering it in the nearest base unit of a
multiplicity of such units distributed throughout the
building or area (for example, on the exhibition stands,

10   or in the offices), and the other of which is used
centrally or by another person to obtain a read out of
that location transmitted by the relevant base unit and
vice versa.

15   As another example, the invention may be utilised in
conjunction with the Internet, and a system of this
nature is shown in Figure 6 and will now be described.
Only six of the multiplicity of stations involved in the
system are shown in Figure 6; the stations are identified

20   generally as stations 51 and specifically as stations 51A
to 51F.

Referring to Figure 6, the six stations 51 are connected
via the public (international) telephone network 52 (or

25   possibly directly) to have access to the Internet network
53, through servers 54 (although the stations 51 are
shown in Figure 6 linked to the network 53 through
different servers 54, there is no significance in this).
Each of stations 51A to 51E includes a base unit 55

30   (corresponding in general form to that of the base unit
of Figure 2 or 3) for receiving appropriate tokens 56 and
communicating with a data-base server 57 of the Internet
network 53. A combined telephone and base unit 58
including provision for receiving tokens 56, is involved

35   in station 51F for the same purpose.

The base unit 55 in each of stations 51A to 51C is
connected to the telephone network 52 via a respective
personal computer 59. The stations 51A and 51D to 51F
each include a telephone 60 that may be used in addition

5   to the computer 59 for communication, whereas
communication with each of the stations 51B and 51C is
limited to data communication via the computer 59 (unless
the computer 59 includes a voice facility). For stations
51D and 51F the units 55 and 58 include a suitable modem

10   and dialler to enable access to be gained to the server
57, whereas a separate modem-dialler 61 is utilised in
the station 51E.

Communication is established automatically with the

15   network 53 via the telephone network 52, whenever there
is activation of any of the tokens 56 within the unit 55
of any station 51A to 51E, or within the unit 58 of the
station 51F. The server 57, which has a data-base for
storing details including the identifiers of all tokens

20   56 utilised, is accessed to register in, and if necessary
update, information concerning the token and its location
registered in the data-base. There is response of the
server 57 to the call in accordance with the mode of
operation applicable to the activated token 56, and in

25   this regard the server 57 may act to set up an
appropriate data-transmission connection via the networks
52 and 53, or to communicate information to the calling
station 51 to enable such a connection to be set up from
that station. In the latter respect also, a message sent

30   by one station 51 to another could be stored either
directly in the station 51 of the called (or even the
calling) party or in the data-base of the server 57 or of
a server 54, to be collected at some later opportunity by
the called party.

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Although in the examples of systems described above with
reference to Figures 1 and 6, each station 1 and 51 has

18

an individual line, this is not necessarily the case.
Where the stations share lines, they may have individual,
identification codes that are registered at the data-base
unit 27 or server 57 together with their respective line-
5   locations; each station is then responsive to signals on
the line connected to it only if the code individual to
that station is included in those signals.

It is to be noted that no programming or keying in of
10   data is required of the user of the system of Figure 1 or
Figure 6 to enable him/her to make use of the
communications method and system of the present
invention. Complication for the user is avoided in that
he/she is required merely to interact with one or more
15   tokens; as for example in the systems of Figures 1 and 6,
by inserting and depressing the token 11 or 56 wherever
and whenever communication is required. Moreover,
although in the above-described systems, the stations 1
and 51 are all fixed, one or more of them may be mobile.
20   Also, it is possible for the one or more token-receiving
receptors used by an individual to be at a fixed station,
but for the individual to receive calls relayed from that
station to him/her elsewhere, for example, via mobile
telephone. In this case, some of the tokens entered into
25   the receptors, or some of the receptors into which tokens
are entered, may be such as to grant priority of access
whereby calls associated with those tokens or receptors
are relayed directly through to the individual, but calls
associated with the other tokens or receptors are
30   transferred to a recorded-message and/or message-
recording facility.

Where an individual or enterprise is issued with more
than two tokens for retention of one of the tokens for
35   their own use and distribution of the remainder to
others, it is possible to arrange that actuation of any
one of the group of issued tokens will establish

19

communication with all the others of the group. On the
other hand, this group-access function may be limited to
only one (or more) of the group. For example, an
employer may be issued with ten tokens, a first of which

5   is for his/her use alone and the other nine of which are
distributed to his/her staff. The same code is carried
by all ten tokens but the first token has an encoded flag
indicating a 'master' status, whereas those distributed
to the staff are encoded with a 'slave'-status flag, such

10   that all staff may be contacted and/or located using the
first token, but only the employer can be contacted
and/or located using any of the other nine tokens.

The tokens used in any situation may be of a form that

15   includes a facility to enable data contained within the
token to be changed or modified; for example, with the
embodiment of token described above with reference to
Figure 2, the transponder module 26, may have a read-
write capability. Data may be simply transferred to, and

20   copied from, twin or otherwise-related tokens, or to or
from any device connected to either receptor unit.

The provision of tokens having a read-write capability
enables a user to encode a token according to a unique

25   code supplied from a central station operating the data-
base. The same code could be communicated to another
user for use in encoding a 'paired' token or tokens and
facilitate the setting up of communication between the
two (or more) users.

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Furthermore, read-write tokens may be provided having the
capacity to store the identifiers of other tokens
together with a user's personal code (which may be the
identifier of the user's station or base unit). The user

35   could use this 'master' token to store the identifiers of
those of his/her tokens that he/she wishes to use for
communication (as calling or called party) while away

from his/her station. The 'master' token can then be
used anywhere the user chooses, to advise the data-base
of the changed locations for communication, of all the
tokens together, or for checking calls and/or messages
5   directed to any of those tokens.

Tokens having a read-write capability may be utilised for
money transactions. For example, each token may have a
monetary value assigned to it (different tokens may have
10   different monetary values) that is debited in accordance
with the transactions for which it is used either at
point-of-sale or bank stations, or even at a 'home'
station. The token may be re-charged to restore or
increase its monetary value by setting up communication,
15   possibly from the 'home' station, with a bank or credit
source. For security purposes, it may be arranged that
re-charging can only be carried out when the token is
entered in the 'home' station where it was initially
charged, the identity of this station having been written
20   (burnt) into the token during such charging.

Where twin tokens are used, perhaps shared between two
individuals, they can be used to transfer monetary value
from one to the other (in one direction only or in either
25   direction) through the communications system without the
need for entry of identification data of the token;
keying in, or other entry, of a short access code may
nonetheless be required for the purposes of a separate
security protocol. The amount to be transferred can be
30   keyed into a special interface connected to either of the
receptor units currently retaining the tokens, or by
using the pushbuttons of its associated telephone. As an
alternative, transfer could be effected by pressing or
otherwise manipulating one of the tokens in its receptor
35   unit; pressing the token might, for example, be
identifiable with a certain sum, so that the amount

transferred depends on how many times the token is
pressed.

The proposal for monetary-value or funds transfer between
5   tokens is applicable to a situation in which the
monetary-value of a token used by an individual away from
home can be re-charged. Re-charging may be directly from
the twin token retained at the individual's home, or from
his/her bank account using the twin token to provide
10   authority for the transaction and possibly setting up the
necessary connection for the transfer. It may be
desirable in the interests of security for the token
retained at the home station to be entered into its
receptor unit only when and if transfer is required. The
15   possible inconvenience of this, however, may be overcome
by arranging that the home-retained token has no monetary
value in itself and cannot be used otherwise than to
enable monetary transfer to take place.

20   As an alternative, however, in the situation for example
in which one or more individuals are dependent on another
person or entity for funds, that other person or entity
may use their 'main' token to authorise transfer of funds
or monetary value (for example from their bank account)
25   to those one or more individuals, using the 'main' token
at any station anywhere. The 'main' token may
incorporate a facility for allowing funds to be drawn by
the individuals without special authority, for example,
up to a certain limit and/or under a restriction of rate
30   of drawing.

Claims:

1.   A communications method wherein communication
between any of a multiplicity of stations is initiated by
activating the transmission from one of the stations of
identification data derived from a token, the
identification data is related through a data-base with
data identifying another of said stations, and in
accordance with this latter data, communication is
established with the identified station.

2.   A communications method according to Claim 1 wherein
communication is established with the identified station
automatically in response to reading out of the station-
identifying data from the data-base.

3.   A communications method according to Claim 1 or
Claim 2 wherein the communication established with the
identified station is such as to result in activation of
a related token located at that station to emit an audio
and/or visual signal indicative of establishment of such
communication.

4.   A communications method according to any one of
Claims 1 to 3 wherein pairs or larger groupings of tokens
are used, the tokens of each pair or other grouping are
related to different stations from one another, and the
data-base stores in relation to each grouping data
identifying the stations to which those tokens are
respectively related, such that activation of
transmission of identification data derived from any such
token is effective to identify through the data-base, the
station to which the other or each other token of the
grouping is related.

23

5.   A communications method according to Claim 4 wherein
the identification data of each token within each
grouping has a predetermined correspondence with the
identification data of each other token within that
grouping.

6.   A communications method according to any one of
Claims 1 to 5 wherein a plurality of tokens are all
associated through the data-base with the same station
such that activation of transmission of identification
data derived from any such token when located at another
of the stations is effective to establish communication
between this other station and the station with which the
token is associated as aforesaid.

7.   A communications method according to any one of
Claims 1 to 6 wherein tokens are used to request a
service, activation of transmission to the data-base of
identification data derived from any such token results
in transmission of a request for service to a station
that is associated through the data-base with such
service, and transmission of the request is accompanied
by identification of the station from which the request
originated.

8.   A communications method according to any one of
Claims 1 to 7 wherein activation of the transmission from
a station of identification data derived from a token is
brought about by predetermined interaction between that
token and interface means at that station.

9.   A communications method according to Claim 8 wherein
said interaction is effected by depressing the token with
respect to the interface means.

10.   A communications method according to Claim 8 or
Claim 9 wherein data identifying the interface means is

transmitted together with the identification data derived
from the token.

11. A communication method according to any one of
Claims 1 to 10 wherein the data-base is updated as to
token-location in accordance with the identification data
derived from the token and data identifying its location.

12. A communications method according to any one of
Claims 1 to 11 wherein the identification data is derived
from a transponder carried by the token.

13. A communications method according to any one of
Claims 1 to 12 wherein the stations are stations of a
telephone network.

14. A communications method according to any one of
Claims 1 to 13 wherein transmission to the data-base of
data derived from a token is made via the Internet or
other computer network.

15. A communications system for establishing
communication between any of a multiplicity of stations,
including a plurality of tokens for location at the
stations and each operable at any of the stations for
activating the transmission from that station of
identification data derived from that token, means
providing a data-base that relates the identification
data with data identifying another of said stations, and
further means operative in accordance with this latter
data.

16. A communications system according to Claim 15
wherein said further means is operative in accordance
with said data identifying another station to establish
communication with the identified station.

17. A communications system according to Claim 15 or Claim 16 wherein each token includes a transponder that is operable for supplying the data derived from the token.
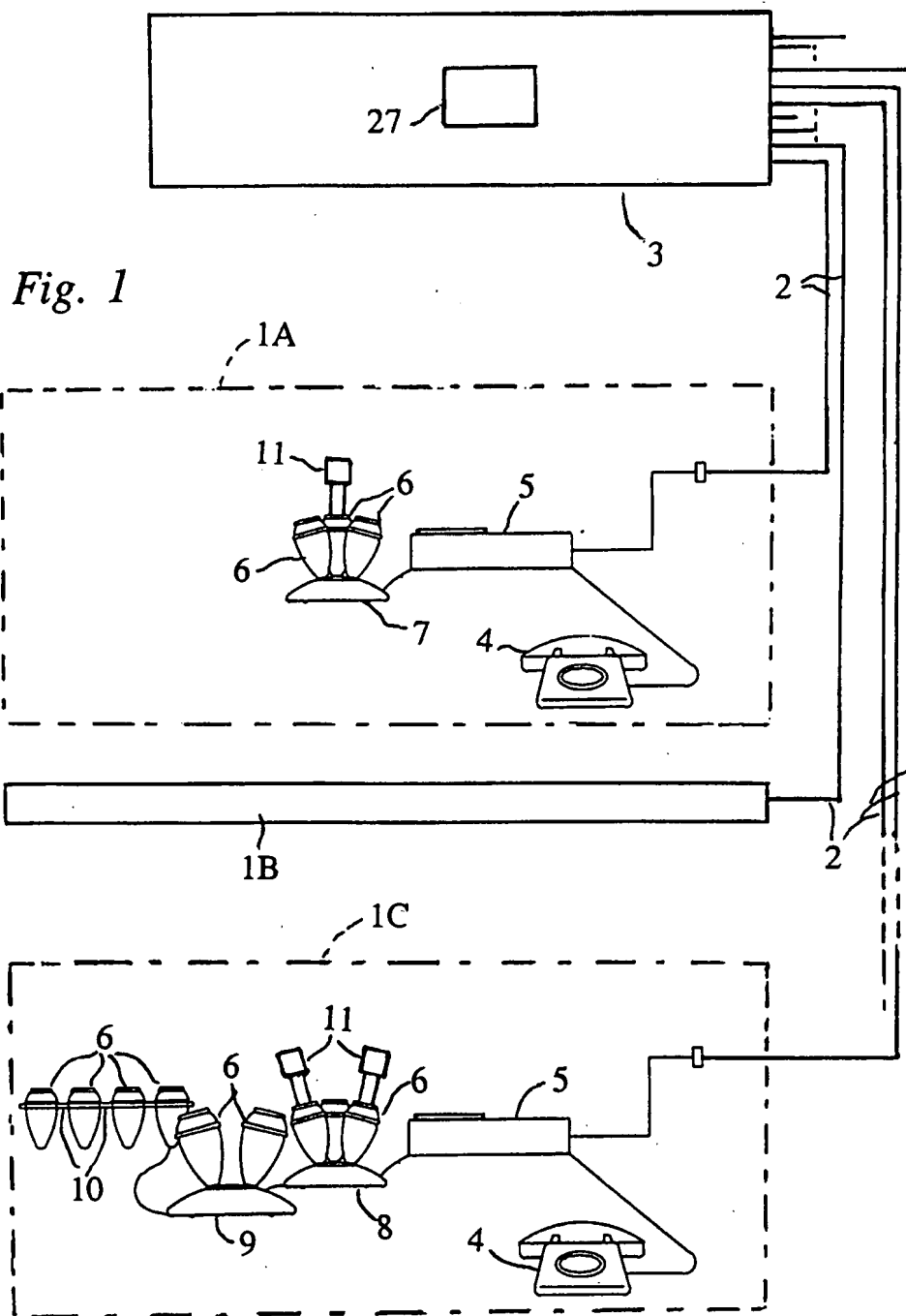
18. A communications system according to any one of Claims 15 to 17 including interface means located at said stations for predetermined interaction with the tokens to derive said identification data in respect of each such token.

19. A communications system according to Claim 18 wherein token-operation is effected by displacement of the token within the interface means.

20. A communications system according to any one of Claims 14 to 19 wherein communication between the stations and the data-base is via a telephone network.
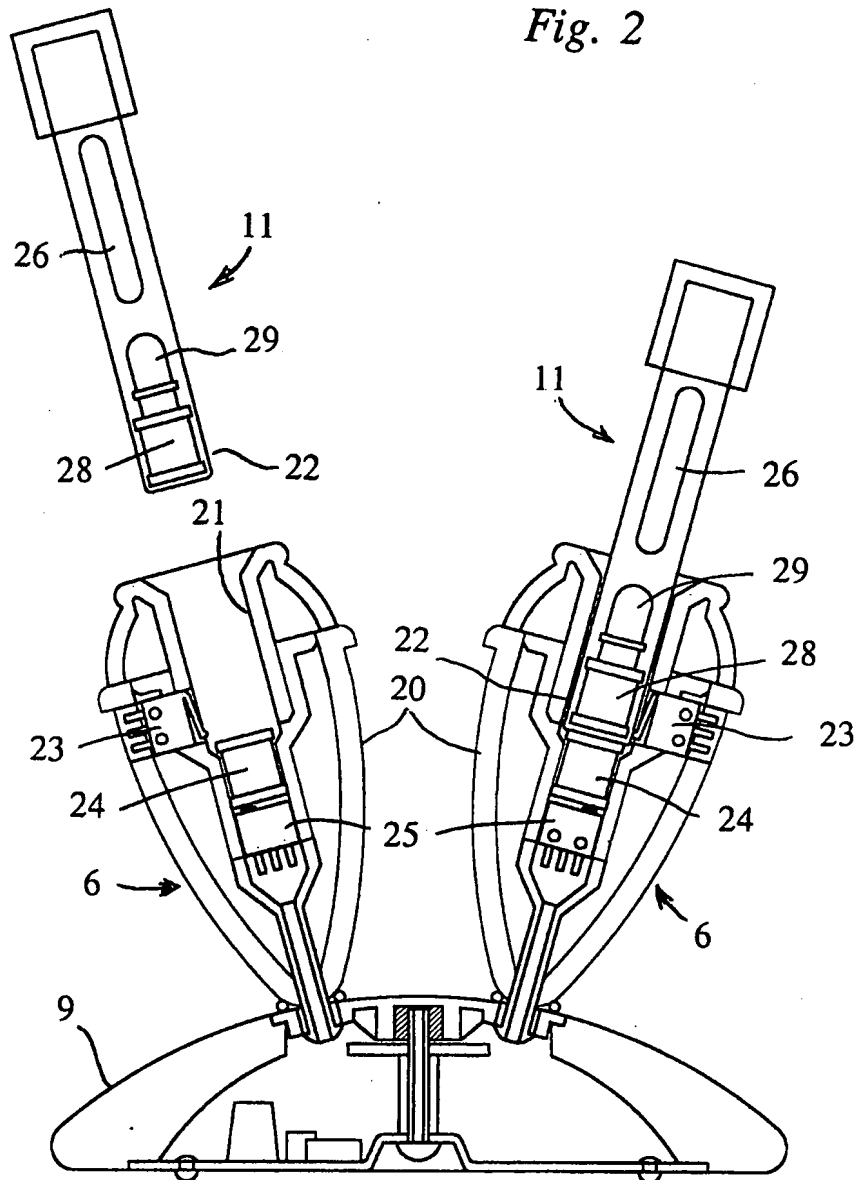
21. A communications system according to any one of Claims 14 to 20 wherein transmission of data derived from a token to the data-base is via the Internet or other computer network.
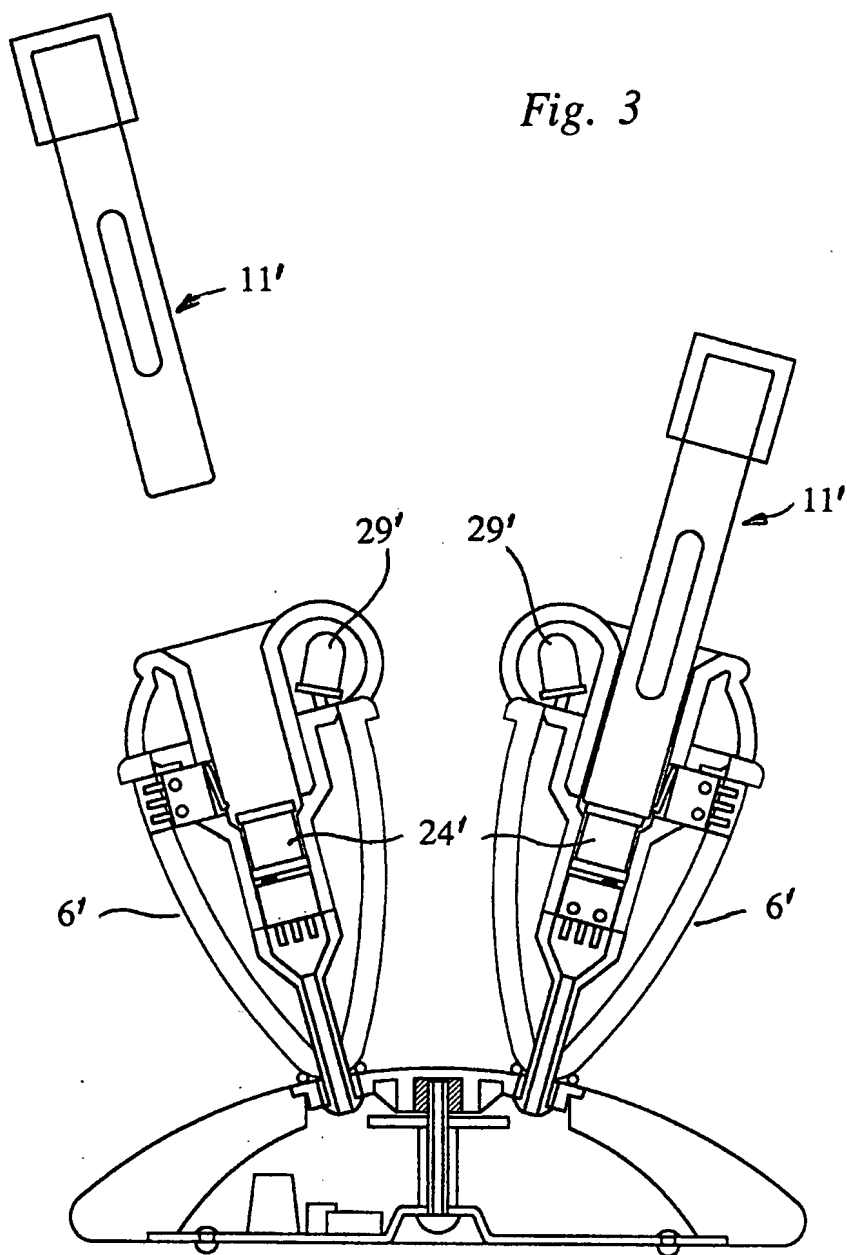
Fig. 1

Fig. 2

Fig. 3

4/5

Fig. 4
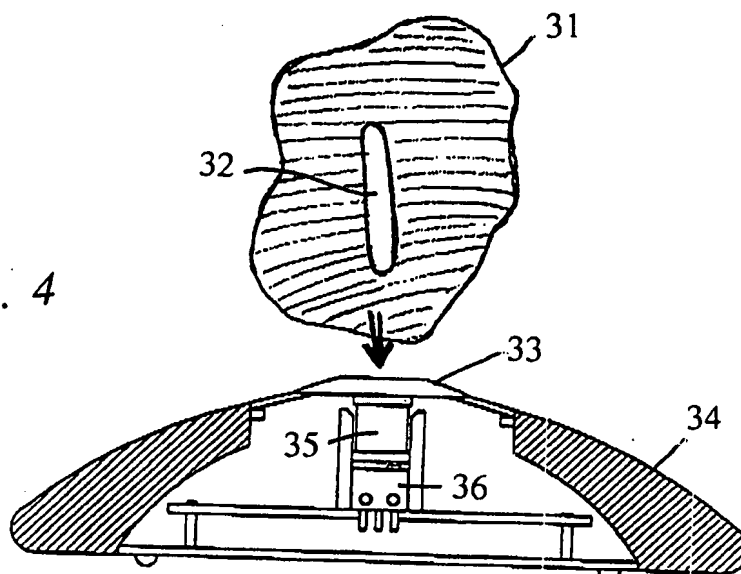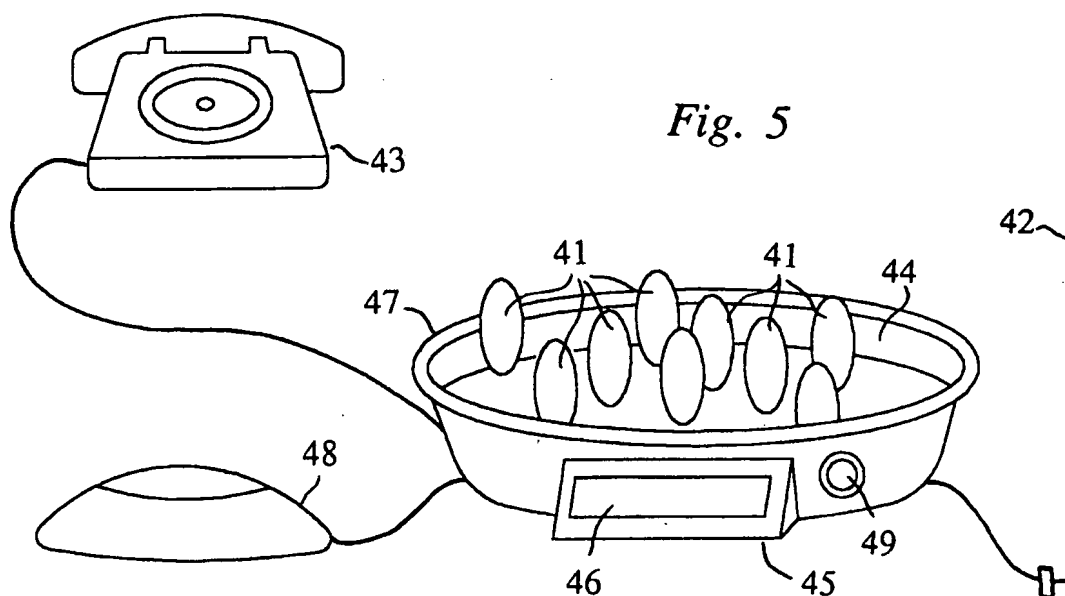

Fig. 5

5/5

Fig. 6